

Claims

1. A pressurization apparatus for biogas, **characterized** in that said pressurization apparatus (201) for pressurizing biogas (210) comprises:

- a biogas inlet pipe (211) having at least a biogas feeding means (213),
- 5 - a biogas outlet pipe (221) having at least a biogas cut-off means (222, 223),
- a washing water inlet pipe (231) having at least a washing water pressurization device (232),
- a washing water outlet pipe (241) having at least a cut-off valve (242),

and is operated according to the following cycle:

- 10 - pressurized washing water (230) is fed to the pressurization apparatus (201) containing biogas (210) using said washing water pressurization device (232) of said washing water inlet pipe (231),
- purified biogas (220) is passed through said cut-off means (222, 223) of said biogas outlet pipe (221),
- 15 - the water level (VP) in the pressurization apparatus (201) having reached the upper limit (VP_{YR}), the cut-off valve (242) of said washing water outlet pipe (241) is opened,
- pressurized biogas (210) is passed to said pressurization apparatus (201) through said biogas inlet pipe (211),
- 20 - the water level (VP) in the pressurization apparatus (201) having reached the lower limit (VP_{AR}), the cut-off valve (242) of said washing water outlet pipe (241) is closed.

2. Pressurization apparatus according to claim 1, **characterized** in that said biogas inlet pipe (221) comprises a one-way valve (212) to control the flow of said biogas
25 (210).

3. Pressurization apparatus according to claim 1 or 2, **characterized** in that biogas (210) is fed with said biogas feeding means (213) at a pressure of 1 to 100 at (gauge).

4. Pressurization apparatus according to any of the preceding claims, characterized in that washing water (230) is fed with said washing water pressurization device (232) at a pressure of 10 to 600 at (gauge).
5. Pressurization apparatus according to any of the preceding claims, characterized in that a carbon dioxide removal unit (243) is connected to said pressurization apparatus (201).
6. Pressurization apparatus according to any of the preceding claims, characterized in that said pressurization apparatus (201) comprises one or more nebulizers (202) for washing water.
- 10 7. Pressurization apparatus according to any of the preceding claims, characterized in that said pressurization apparatus (201) comprises two or more washing water pressurization devices (232).
8. Pressurization apparatus according to any of the preceding claims, characterized in that one or more dryers (301) for pressurized biogas (220) is (are) connected to said
15 pressurization apparatus (201).
9. Pressurization apparatus according to any of the preceding claims, characterized in that the biogas inlet pipe (211) comprises a one-way valve (212).
10. Pressurization apparatus according to any of the preceding claims, characterized in that one or more pressure tanks (401) for storage of said pressurized biogas (220) is
20 (are) connected to said pressurization apparatus (201).
11. A method for pressurizing biogas, characterized in that biogas (210) is pressurized by means of a pressurization apparatus (201) comprising:
 - a biogas inlet pipe (211) having at least a biogas feeding means (213),
 - a biogas outlet pipe (221) having at least a cut-off means (222, 223),
 - 25 - a washing water inlet pipe (231) having at least a washing water pressurization device (232),
 - a washing water outlet pipe (241) having at least a cut-off valve (242),said apparatus being operated according to the following cycle:
 - pressurized washing water (230) is fed to the pressurization apparatus (201) containing biogas (210) using said washing water pressurization device (232),
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- at least as the water level (VP) is lowered, purified biogas (220) is passed through said cut-off means (222, 223) of said biogas outlet pipe (221),
 - the water level (VP) in the pressurization apparatus (201) having reached the upper limit (VP_{YR}), the cut-off valve (242) of said washing water outlet pipe (241) is opened,
 - pressurized biogas (210) is passed to said pressurization apparatus (201) through said biogas inlet pipe (211),
 - the water level (VP) in the pressurization apparatus (201) having reached the lower limit (VP_{AR}), the cut-off valve (242) of said washing water outlet pipe (241) is closed.
12. Method according to claim 11, **characterized** in that the feed of washing water is stopped as the water level (VP) has reached the upper limit (VP_{YR}),
13. Method according to claims 11–12, **characterized** in that washing water (230) is fed with said washing water pressurization device (232) at a pressure of 10 to 600 at (gauge).
14. Method for constructing a pressurization apparatus for biogas, **characterized** in that a pressurization apparatus (201) is provided with:
- a biogas inlet pipe (211) having at least a biogas feeding means (213),
 - a biogas outlet pipe (221) having at least a biogas cut-off means (222, 223),
 - a washing water inlet pipe (231) having at least a washing water pressurization device (232),
 - a washing water outlet pipe (241) having at least a cut-off valve (242),
 - manually operated and/or automatic control device to control said pressurization apparatus according to the methods of claims 11–13.